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By Authority of the
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W. MONTGOMERY
Certifying Officer

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A/PROV

Provisional Application

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Date of Deposit: February 1, 1999
I hereby certify that this is being deposited with the United States Postal Service "Express Mail, Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to Box: Provisional Patent Application, The Assistant Commissioner for Patents, Washington, D.C. 20231.

By: Elmer Galbi
Elmer Galbi, Reg. No. 19,761
13314 Vermeer Drive, Lake Oswego, OR 97035
Phone 503-697-7844

Cover Sheet and Letter of Transmittal

Box: Provisional Patent Application
Commissioner of Patents and Trademarks
Washington, D.C. 20231
Dear Sir:

Please file these documents as a **PROVISIONAL APPLICATION** under 35 U.S.C §111 (b).

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The title of the Invention is: **Aggregating On-Line Purchase Requests**
Attorney Docket Number is: **EWG-086,**
Attorney name: **Elmer Galbi**, Attorney Registration number 19,761
This invention **was not** made under contract with an agency of the U.S. Government.
Please address all correspondence concerning this Provisional Application to:

Elmer Galbi
13314 Vermeer Drive
Lake Oswego, Oregon 97035

Telephone Contact: **503-697-7844**
Enclosed are:

1) A specification describing the invention 21 pages and twelve drawings.
2) A check for $150.00 (EWG # 2487) covering the filing fee.
3) A return card for filing notification.

Please charge any deficiency in the enclosed fee (or credit any overpayment) to Deposit account 500,433 which is in the name of Elmer Galbi.

Respectfully submitted,

Elmer Galbi

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Aggregating On-Line Purchase Requests

Field of the Invention:

The present invention relates to the internet and more particularly to a method and system for selling products and for making purchases via the internet.

Background of the Invention:

Conduction electronic commerce over the internet has become very common. Many products are sold over the internet utilizing a relatively conventional buyer-seller transaction. That is, a merchant posts a description of products on a Web page along with the price, a purchaser who sees the web page and who wants to purchase the product then submits an order including a credit card number to the seller's Web site. The merchant charges the purchaser's credit card and ships the product to the purchaser.

The Internet also facilitates other types commercial transactions and several other internet marketing systems are in widespread use. The other types of systems that are in widespread use include on-line auction systems and systems where the purchaser provides a price and the system then provides the product or service if the price provided by the purchaser meets certain criteria. Examples of prior art systems are shown in issued US patents 5,835,896 and 5,710,887.

Description of the Present Invention:

The present invention provides a system and technique which aggregates demand for products or and services on a real time basis. With the present invention individual buyers are aggregated into temporary groups. The members of a group

can purchase at a volume price. The price paid is based on the number of members in the group. This is done without the members of each temporary group having any interaction with each other and without the members of each temporary group knowing anything about the other members of the temporary group. The price at which products are sold is based upon the number of individuals that join each particular group. By aggregating individual purchasers into temporary buying groups on a real time basis, the invention reduces supplier sales and marketing costs. The present invention provides a "just in time demand system" which has advantages that are somewhat similar to the those of the widely used just in time supply systems. The invention operates in several steps which are termed a "buy cycle". In the first step a product description is posted on a web page. The web page also lists a price schedule which specifies a series of prices based upon the number of purchasers for the product. Prospective purchasers then enter their orders via the internet. A counter on the web page shows the number of purchasers who have entered orders. A buy cycle is closed based upon a pre-established criteria such as after a fixed period of time, after a preset number of orders have been submitted, or after a criteria which taken into consideration the rate at which orders are being received. After a buy cycle is closed the orders are process, products are shipped to the customers and the customers credit cards are charged.

Brief Descrition of the Drawings:

Figure 1 shows the layout of a web page.

Figure 2 shows a flow diagram of the membership process.

Figure 3 shows a flow diagram of the decision guide process.

Figure 4 shows a flow diagram of beginning a buy cycle.

Figure 5 shows flow diarg of the end of a buy cycle.

Figure 6 shows the watchdog cycle.

Figure 7 shows the opening of a buy cycle.

Figure 8 shows the no slice subroutine.

Figure 9 shows the maximum buy subroutine.

Figure 10 shows the current buy subroutine.

Figure 11 shows the price buy cycle.

Figure 12 shows the current price subroutine.

Detailed Description of a Preferred embodiment:

The preferred embodiment of the present invention provides a web site which gives purchaser's (i.e. customers) a "just in time" demand experience. Prospective purchasers who visit the web site are provided with decision tools and product information necessary to make intelligent purchasing decisions. Once a product is selected, customers are presented with a price schedule based on volume levels. Customers may simply purchase at the posted price or launch a buying cycle.

A buying cycle is a purchasing cycle that aggregates demand for a particular product within a given period of time. Buying cycles are take into account two types of purchase behaviors:

1. Destination demand – customers who come specifically to purchase a product
2. Latent demand – those customers who have previously provided buying profiles and wish to be notified when certain purchasing requirements are met. These customers are notified via email when their requirements are matched.

At the time a customer joins a buying cycle, the customer is made aware of the MAXIMUM price they would have to pay should no other customers join that cycle.

As additional customers join the buying cycle, the unit price declines. With the present invention buyers work together instead of against each other. In online auctions customers bid against each other. Once a buying cycle is closed, the system completes the transaction in a conventional manner by processing orders based on the volume attained.

The invention is implemented by means of application program which runs on a conventional web server. The web server can be any of the conventionally used web servers such a those marketed by Sun Microsystems Corporation or those marketed by the Microsoft Corporation. Such servers operate under a system control program which in turn calls an application program. For example the Microsoft IIS 4.0 Web Server program has an associated Microsoft Site Server program that provides basic cataloging functionality, order processing capability and a transaction pipeline which performs such operations as calculating tax due, and credit card verification. The preferred embodiment of the invention as described herein is implemented as an application program or web site operating under a server operating system.

The web site which implements the present invention includes a number of linked web pages and a computer program which implements various functions required in order to implement the invention. The web site is conventional except for the specific functions described herein. The manner in which the web pages are accessed and the manner in which the program described below is integrated into the site operating system are conventional and thus they are not specifically described herein. Reference is made to text books such as the following for a description of how web sites are implemented and for a description of how application programs are operated on a web site:

1) Information Architecture for the World Wide Web by: Louis Rosenfeld, Peter Morville / O'Reilly & Associates / March 1998

2) Web Design Resources Directory : Tools and Techniques for Designing Your Web Pages by: Ray Davis, Eileen Mullin Published 1997

3) Microsoft Internet Information Server 4 : The Complete Reference (Complete Reference) by: Tom Sheldon, et al / Paperback / Published 1998

The primary actions on the web site which implements the present invention take place during what is termed a "buy-cycle". During a buy cycle, customers indicate that they want to buy a particular product and orders are accumulated. The number of orders accumulated during a buy cycle determines the price at which the particular product is sold.

Figure 1 shows a block diagram of a web page referred to as the "order web page" and designated as web page 2. . The order web page includes:

a) a product description window 3 which includes a description of a particular product,

b) a price-volume window 4 which lists the price for various volumes of the product,

c) an orders received window 5 which lists the number of orders received during the active buy cycle,

d) a "buy-button" 6 to indicate a buy decision,

e) a time remaining window 7 which shows the time remaining in the particular buy cycle, and

f) a buy cycle closed window 8 which shows that the particular buy cycle has been closed.

g) a heading and logo window 9 which gives information about the company.

The following is a specific example of a price schedule that appears in price volume window 4:

Items ordered in the cycle:	Unit price:
1-10.	500
11-30.	475
31-50.	450
50-100	425
100+	400

It is noted that Figure 1 is a block diagram of a web page. An actual web page would include colors and graphics to make the web page appealing to consumers. The web page could also include various other related information, links and choices.

Customers who visit the web site can order the product by pressing (i.e. clicking on) the buy button 6. The number of customers who have ordered the particular product during the particular buy cycle is shown in the orders received window 5. The time remaining in the particular buy cycle is shown in window 7. When the buy cycle ends, no further orders are accepted for the particular product during that particular buy cycle and the orders and filled and the customers are charged in a relatively conventional manner.

As indicated in Figure 2, the web site includes a mechanism for registering prospective customer. The registration process is conventional and the web site

includes a web page (not explicitly shown herein) which includes fields in which a customer can enter registration information. As indicated by blocks 21 and 22, advertisements or word of mouth brings prospective customers to a home page (or entry point) 23 on the web site. The home page 23 describes the system and provides a mechanism for prospective customers to indicate that they would like to register for use of the site. Prospective customers can either register as "guests" without payment of any fee or as "members" which requires payment of a fee. As will be explained later, customers who pay a membership fee and register as members obtain certain privileges. Web sites which allow for both guests (at no fee) and members (with the payment of a fee) are conventional. As indicated by block 24, both guests and prospective members provide information which is collected to generate a profile 25. If a member or guest orders a product, the information in their profile is used to bill their credit card as shown by block 26. Such operations are conventional.

After a prospective customer has registered as either a member or as a guest as described above, the customer can login as indicated by block 31 in figure 3. As indicated by block 33, once a customer has logged into the system they are provided with a "solutions guide" web page 33 which helps the customer pick an appropriate product. The solutions guide web page 33 includes hyperlinks to buying preferences survey web page 32 and a review and rating web page 34. As a result of the help provided by web page 33, the customer makes a choice as indicated by block 35. If the customer's choice is for a product that already has an active buy cycle, the customer's choice results in an order in that buy cycle as indicated by block 36. If the customer's choice is not a product which has an active buy cycle, a buy cycle is initiated as indicated by block 37. At a pre-established time, the buy cycle closes as

indicted by block 38 and the product is shipped and the customer is charged as indicated by block 39.

Figures 4 to 12 give detailed program flow diagrams of the programs that operate during a buy cycle. Once a buying cycle starts, a series of individual purchase requests are collected by a central server referred to herein as the primary aggregation server. Instead of having one primary aggregation server, individual purchase requests can be collected by a number of distributed secondary aggregation servers. That is, the individual purchase requests can be collected by a number of remote computers linked to an aggregation server through a communication link.

Buy-cycles can be started at any time\. Buy cycles end when a preset number of purchase requests have been exceeded, or if a preset time limit has elapsed. Prior to the start of a buy cycle, a price-point structure is set by a system administrator (not shown). The system administrator sets a minimum and maximum number of purchase requests for each price point and this information is listed on the order web page 2. Prospective customers therefore have accurate price information at all times time during the buy-cycle. As each purchase request is entered and validated into the aggregation server during the buy-cycle, a counter is incremented (or decremented) identify the current number of purchase requests. When the buy-cycle closes, the counter is consulted to establish the final price attributed to the buy-cycle.

Each buy-cycle relates to a particular item for sale with a price structure constructed as follows:

Table A.1: Price Structure Construction

	Number of Items		
Slice Number	Minimum	Maximum	Price
0	$n_0=0$	n_1-1	P_O
1	n_1	n_2-1	P_1
2	n_2	n_3-1	P_2
3	n_3	n_4-1	P_3
m-1	n_{m-1}	n_m	P_{m-1}

The price structure is divided into "$_m$" price slices, each with a corresponding price "P_m". For each price slice, there is a minimum number of items for sale "n_m" and a maximum number of items "$n_{m-1}-1$". A representative example is as follows: :

Table A.2: Price Structure for Sample Buy-Cycle

Slice Number	**Number of Items**		**Price**
	Minimum	**Maximum**	
0	0	3	$10.00
1	4	9	$9.75
2	10	11	$9.00
3	12	49	$8.00
4	50	199	$6.50

Note:

1. By definition, a price structure as at least two (2) price slices.

2. The largest maximum number of items for the last price slice corresponds to the cut-off point, which, if reached, will end the buy-cycle.

In order to manage buy-cycles, the following operations are defined. Each buy-cycle is identified through a unique buy-cycle identifier called buy_cycle_id.

1. Begin (buy_cycle_id,time_t), which initializes and starts a buy-cycle that will last until time_t,

2. End(buy_cycle_id), which terminates the buy-cycle either manually or by being called from the buy-cycle watchdog, and

3. Watchdog(buy_cycle_id), which automatically supervises the status of a selected buy-cycle.

The following operators are defined to determine state information about buy-cycles:

1. Open(buy_cycle_id), which returns a boolean result on whether or not the buy-cycle referenced by the unique buy-cycle identifier buy_cycle_id is active,

2. No_slice(buy_cycle_id), which returns the number of slices m for the specified buy-cycle,

3. Max(buy_cycle_id), which returns nm for the specified buy-cycle,

4. Current(buy_cycle_id), which returns the current number of purchase requests for the buy-cycle, represented as ncurrent,

5. Price(buy_cycle_id,n), which returns the price point for the specified cycle with n purchase requests, and

6. Price_current(buy_cycle_id)---the logical equivalent of price(buy_cycle_id,n_current), which returns the price point corresponding to the current number of purchase requests.

Figure 4 shows the process that is called whenever a defined buy-cycle needs to be set into active mode. For example this could occur as indicated by box 37 in Figure 3. As indicated by block 210, a subroutine named open() and which is shown in Figure 7 determines if the particular buy cycle is already open. If the buy cycle called is already open, this information is returned to the main program as indicated by block 211. This could either mean that there has been some error or it could be a notice to the main program to go to block 36 shown in Figure 3. As indicated by block 212, if the buy status is not active, the status is set to active. Next, as indicated by block 213 the time limit for the buy cycle is set to a value time_t. As previously indicated the value time_t could either be a fixed value or it could be determined in a number of ways dynamically.

At he end of a buy cycle, the subroutine shown in Figure 5 is called. First as indicated by block 220, a determination of whether the cycle is already opoen is made by the subroutine open(). If the buy cycle is not open, no action is taken as indicated by block 221 and control is returned to the calling program. If the buy cycle is open, the status is set to inactive as indicated by block 222 and the buy cycle administrator (which could be another program or a human operator) is notified as indicated by block 223. At tis point the orders that have been entered during the buy cycle are executed in a conventional manner. That is the products are shipped and the customer's credit cards are charged.

Figure 6 shows the subroutine called "watchdog" which operates while a buy cycle is active. The watchdog process oversees the status of a specific buy-cycle from its inception until the buy-cycle is either terminated manually or when certain buy-cycle-

specific limits have been achieved. As indicated by block 230 and 231 a check is first make to insure that the buy cycle is in fact open. As indicated by blocks 232, 233 and 234, the current time and the buy cycle expiration time are obtained and compared. As indicated by block 234 if the if the buy cycle time has ended the sub routine end() is called. Blocks 235, 236 and 237 indicate the if the buy cycle is active, the current number of requests is obtained and compared to the maximum number of requests. If the number of requests exceeds the maximum bnumber allowed, teh buy cycle is ended. If the number of requests is less than the manixum, the subroutine goes to sleep for a period of time as indicated by block 239 and it them repeats. Providing such a sleep period for such a subroutine is conventional.

Figure 7 shows the subroutine with is used to determine if a buy cycle with a particular ID is open. A conventional data base (not explicitly shown) is used to store the ID's of the open buy cycles. blocks 240 and 241 indicate that the ID of a buy cycle is compared to data in a data base and then a determination is either made the by buy cycle is active (block 242) or a determination is made that the buy cycle is not active (block 243).

Figure 8 shows the subroutine which is used to determine the number of price slices within a buy-cycle. This subprogram sets the value of the variable "m". As indicated by blocks 250 and 251,the number of rows in the table (see above table 1) for a particular buy cycle ID is obtained and used to set the value of the variable "m". Block 260 and 270 in Figures 9 and 10 shows how the variables "no_items_max" and "no_items_current" are set. Figure 9 shows how the maximum number of items available for the buy-cycle is determined. Figure 10 shows the current number of purchase requests within the buy-cycle is determined. It is noted that the SQL calls

are a standard technique for getting data from a data base such as the commercially available and widely used Oracle data base marketed by Oracle Corporation or the widely used Access data base marketed by Microsoft Corporation. The particulars of the data based used to store various information used by the described embodiment of the invention are conventional and not explicitly shown herein.

Figure 11 shows how the price at which orders are executed at the end of a buy cycle. That is the operator illustrated in Figure 11 is used to calculate the price corresponding to the a given number of purchase requests within the buy cycle. Block 280 shows that at the beginning of the subroutine the varibales are initialized. Next as indicated by block 281, an SQL call to the data base is made to set the variables P_O and n_o. Blocks 282 and 283 show that the variable m is incremented and that the value of the variable P_m and n_m is obtained from the data base. Next as indicated by block 284 a check is made to determine if n_m is greater than n. As indicated by block 285, if it is larger the price is set to P_(m-1). If it is smaller, a check is made by block 286 to determine if n equals m. If it does the price is set to P_m. If it is not the process repeats to block 282.

Figure 12 shows a block diagram of the operator used to calculate the price corresponding to the current number of purchase requests within the buy-cycle. First as indicated by block 290, the value of n is set. Next as indicated by block 291 the subroutine price() is called to set the price.

The present invention provides for two types of revenue flows:

Subscription fees - designed to drive value for repeat buyers and to raise customer switching costs. Customers will pay a modest subscription fee, to be renewed periodically such as annually.

Transaction fees - charged on each purchase through the system (subscription customers will be exempt from all transaction fees). Transaction fees are designed to encourage trial and facilitate the purchase of one-off goods.

In addition to the order page 2 described above, the web site which implements the present invention includes a variety of other pages to form an complete site. For example the site includes a "home" page which is a starting point for customers to enter the system and a main page for proving links to other information such as information for partners who want to offer products, information for investors, and notices of employment opportunities.

The web site includes a conventional check out page and an order summary page which displays all the information about an order and requires the customer to press a button indicating that the information is correct.

The site can also include a variety of other web pages, all of which can be reached by "link" buttons displayed on some or all of the web pages. The following is an example of an additional web pages that can be included in the web site:

Shopping basket web page: Reached by clicking a checkout button located in a mini-shopping cart which can be displayed on various other pages. This page can be a first step in a checkout process. The shopping basket web page can include the following elements:

a) editorial content

b) product name and manufacturer logo

c) product availability

d) the current price i.e. The is the maximum amount the customer will have to pay

e) transaction fee which the customer must pay.

f) subtotal: i.e. the total price for all the items in the cart (shipping and tax to be added in the next step)

g) dollar savings to on the individual product. i.e. the list price minus the current price

h) total dollar savings on all items in cart

i) a "remove" box : clicking this box will remove the item from the cart when the page is refreshed.

j) the time and date when this cycle will close.

k) Toolbar with stamdard buttons for items such as Help, About Us, Feedback, Account info, etc.

l) Special Buttons for items such as:

- quantity box
- change quantity

  after changing the quantity in this box, the customer can press a button to reload the page. The refreshed quantity box will show the request quantity. To remove the product from the shopping cart, the customer can either check the remove box or change the quantity in the shopping cart to zero.
- Checkout button (with text , "please verify above information and click here to continue"

m) Links to web pages which give:

- security policy
- returns and refund policy
- cycles in progress

The web site can include a "buy cycle ticker" that communicates what's happening on the buy cycles. The buy cycle ticker is similar to a stock ticker that runs across TV and computer screens. It highlights: a product name (i.e.notebook), a brand (Toshiba); a current price (i.e. $12000 and the number of buyers in the cycle (e.g. 43). Two buy cycle tickers could be provided, one in a red color to denote immediate cycles closing, one to show cycles that will close later.

The site can include provision which a customer can activate during the registration process so that the customer will be notifyed by e-mail of events such as:

1) New items listed on the site.

2) The fact that a buy cycle has reached a particular price point.

3) Thank you messages.

E-mail can also be used to notify customers that products have been shipped and that there credit cards have been charged for a purchase.

The site includes a mechanism so that if a customer leaves the site with items in the shopping cart, the items will appear in their respective areas once the customer returns, as long as a cycle still exists for that particular product. If the cycles are discontinued for that particular product, the item should be removed from the shopping cart.

The tool bars on the various web pages can include a variety of button, For example there can be buttons to contact the supplier, a button to get account information. Various links can be provided such as links to explain company policy, links to a privacy statement. to account information and to various product selection help aids.

A data base program such as a conventional Oracle or Access data base would have stored therein information about the various products being offered for sale. When a new buy cycle for a particular product is initiated, information from this data base would be used to provide information for an appropriate order page sudh as that shown in Figure 1. Registration information about members would be kept in this same data base. An administrator would update the data base as new products become available or with other product and price changes. Such a data base for providing information for a web site would be conventional.

The preferred embodiment of the invention described above is only one example of how the present invention can be practiced. It should be understood that various changes in form and detail may be made without departing from the sprit of the invention. The scope of the invention is limited only by the appended claims.

I claim:

1) A system for facilitating the purchase of products via the internet and which operates in accordance with a buy cycle, said system comprising:
a web server which posts a web page at the beginning of a buy cycle and which describes a product and which lists prices for various quantities of the product,
a web server which accepts orders from purchasers and which tracks the number of purchasers in a buy cycle and which closes said buy cycle based upon pre-established criteria, and
a web server which processes the orders received in a buy cycle.

2) The system recited in claim 1 wherein said buy cycle is closed after a fixed amount of time.

3) The system recited in claim 2 wherein said web page post the length of said fixed amount of time.

4) The system recited in claim 3 wherein said web page posts the amount of time remaining in said fixed amount of time.

5) The system recited in claim 1 wherein said buy cycle is closed after a preset number of orders has been received.

6) The system recited in claim 1 wherein said buy cycle is closed after the rate at which orders are being received falls below a pre-established rate.

7) A system for facilitating the purchase of products via the internet and which operates in accordance with a buy cycle, said system comprising

means which posts a web page at the beginning of a buy cycle and which describes a product and which lists prices for various quantities of the product,

means which accepts orders from purchasers and which tracks the number of purchasers in a buy cycle and which closes said buy cycle based upon pre-established criteria, and

means which processes the orders received in a buy cycle.

8) A method for facilitating the purchase of products via the internet during a buy cycle, said method comprising

posting a web page at the beginning of a buy cycle and which describes a product and which lists prices for various quantities of the product,

accepting orders from purchasers,

tracking the number of purchasers in a buy cycle,

closing said buy cycle based upon pre-established criteria, and

processing the orders received in a buy cycle.

9) The method recited in claim 8 wherein said buy cycle is closed after a fixed amount of time.

10) The method recited in claim 9 wherein said web page post the length of said fixed amount of time.

11 The method recited in claim 10 wherein said web page posts the amount of time remaining in said fixed amount of time.

12) The method recited in claim 8 wherein said buy cycle is closed after a preset number of orders has been received.

13) The method recited in claim 8 wherein said buy cycle is closed after the rate at which orders are being received falls below a pre-established rate.

14) The method recited in claim 8 wherein said orders are processed by charging the cost of each order to the purchaser's credit card.

15) A system for selling products via the internet comprising,
a web page that lists the price of a product at various volume levels,
a program for establishing a buy cycle which has a pre-established termination point.
a program which accepts orders for products and which posts the number of orders accepted within a buy cycle, and
a program which fills the orders received during a buy cycle.

16) A system for selling products via the internet comprising,
a web page that lists the price of a product at various volume levels,
means for establishing a buy cycle which has a pre-established termination point,
means which accepts orders for products and which posts the number of orders accepted within a buy cycle, and
means for filling orders received during a buy cycle.

Abstract:

A system and technique which aggregates demand for products or and services on a real time basis. Individual buyers are aggregated into temporary groups. The members of a group can purchase at a volume price. The price paid is based on the number of members in the group. This is done without the members of each temporary group having any interaction with each other and without the members of each temporary group knowing anything about the other members of the temporary group. The price at which products are sold is based upon the number of individuals that join each particular group

Figure 1, (Web Page)

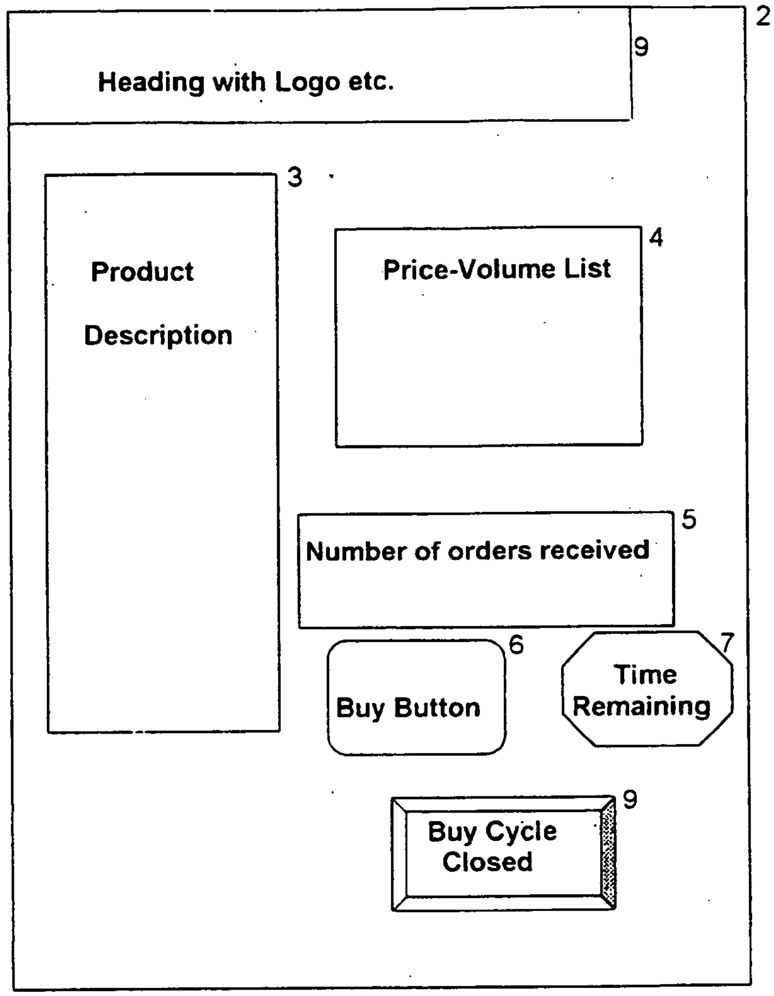


Figure 2

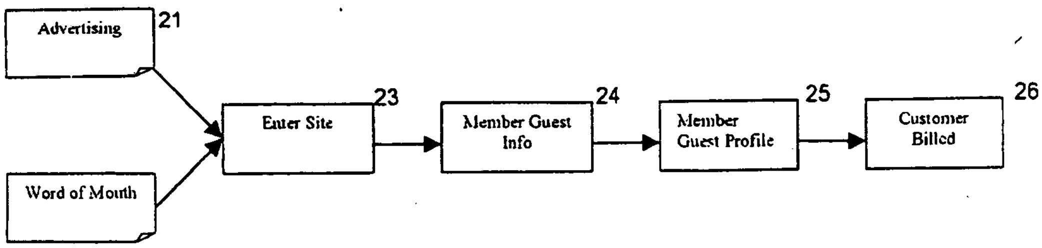

Advertising
21
Word of Mouth
Enter Site
23
Member Guest Info
24
Member Guest Profile
25
Customer Billed
26

Figure 3

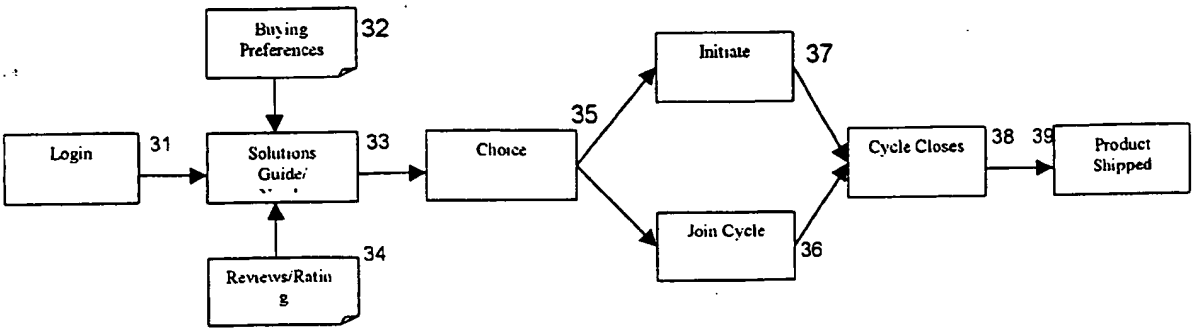


FIGURE 4

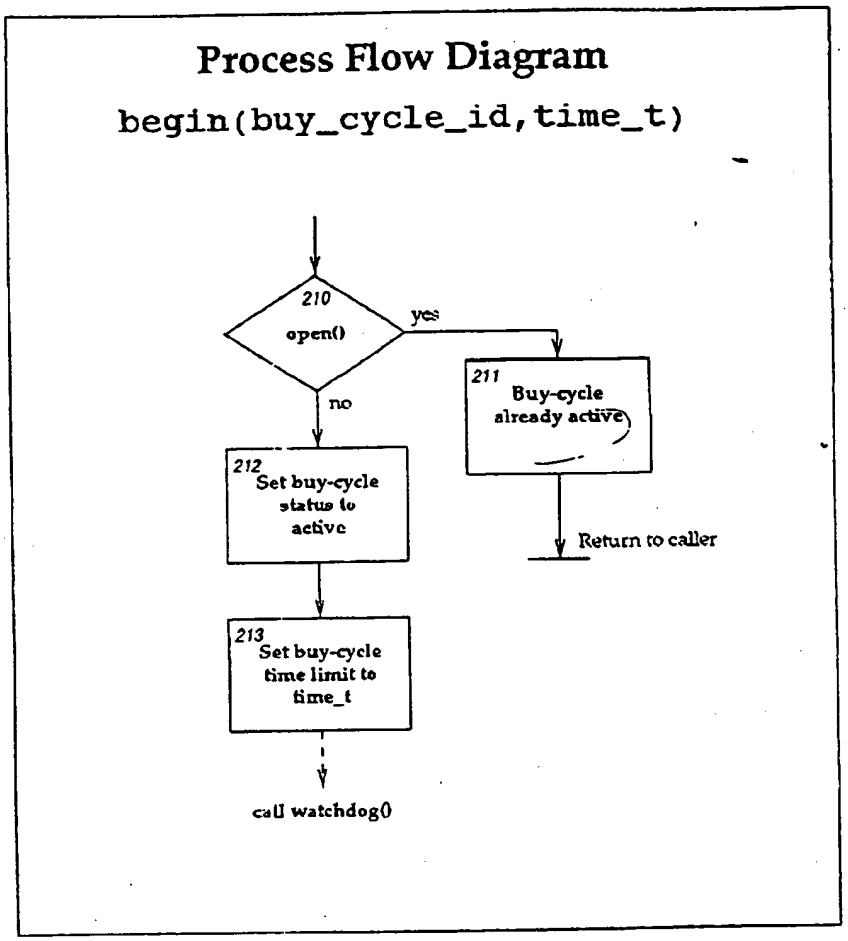

Process Flow Diagram
begin(buy_cycle_id,time_t)
210
open()
yes
no
211
Buy-cycle already active
Return to caller
212
Set buy-cycle status to active
213
Set buy-cycle time limit to time_t
call watchdog()

FIG 5

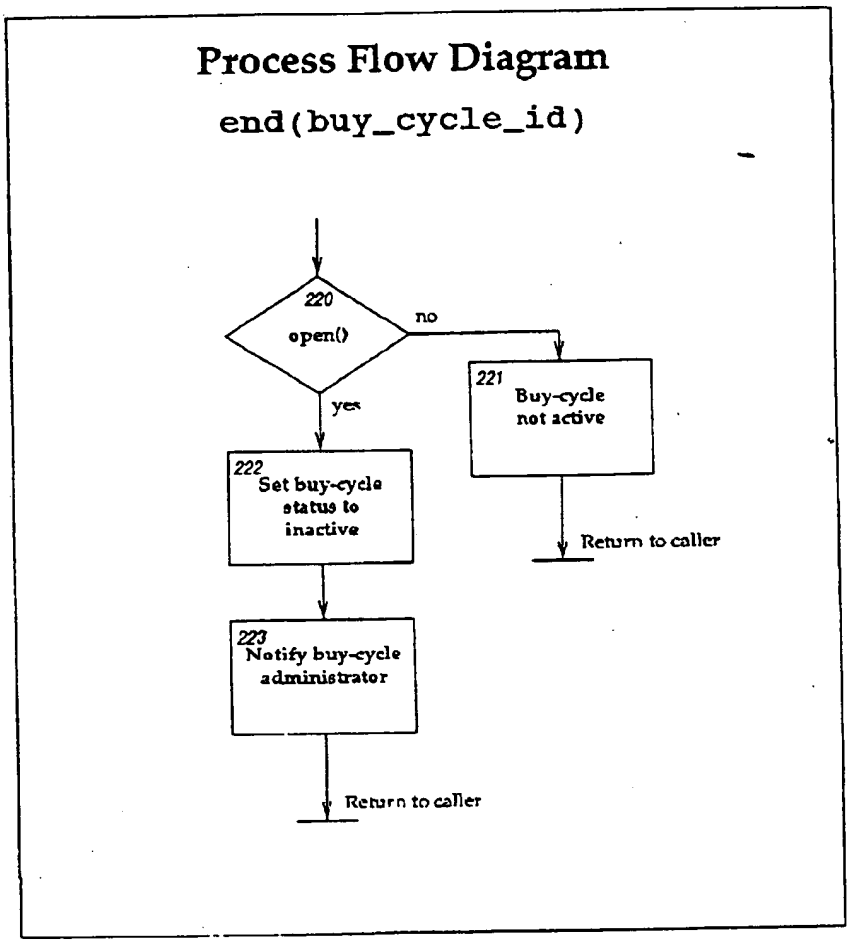

Process Flow Diagram
end(buy_cycle_id)
220
open()
no
yes
221
Buy-cycle not active
Return to caller
222
Set buy-cycle status to inactive
223
Notify buy-cycle administrator
Return to caller

FIG 6

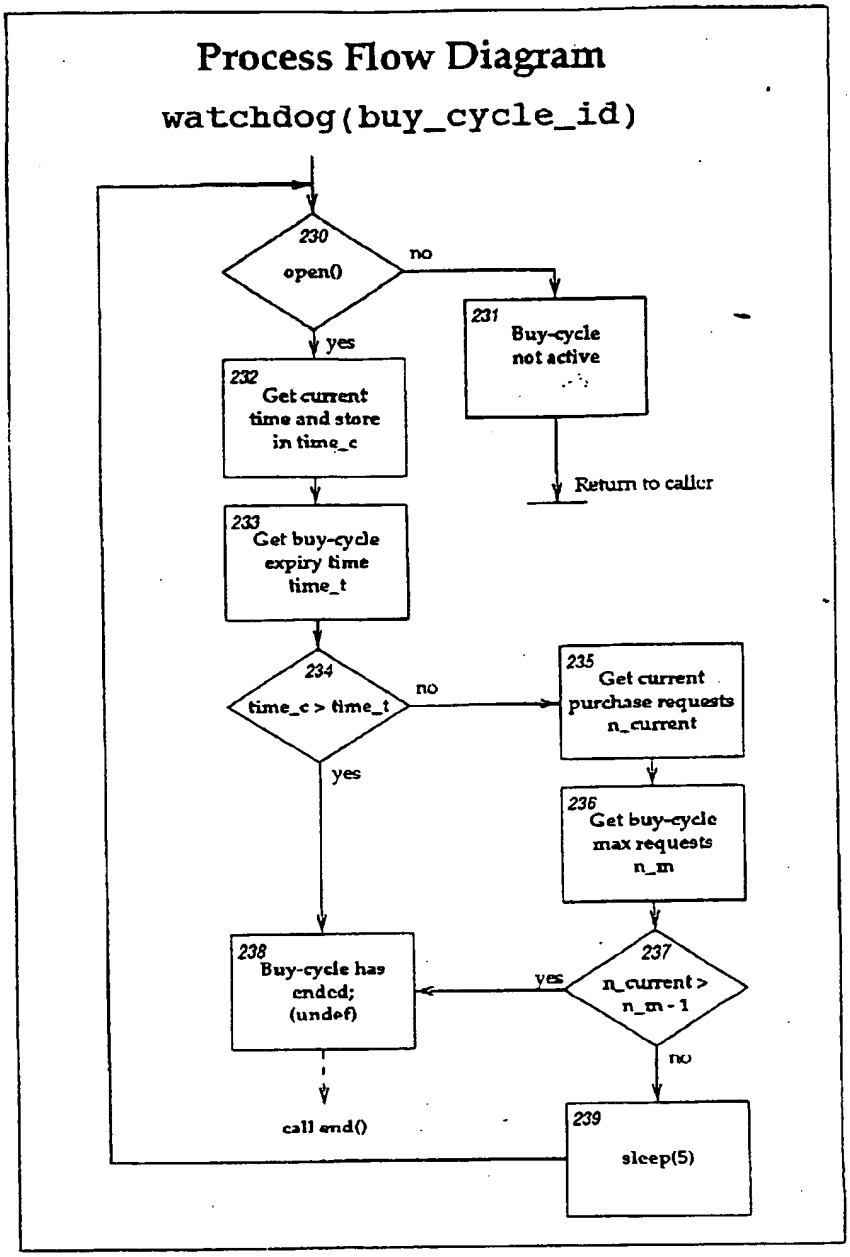
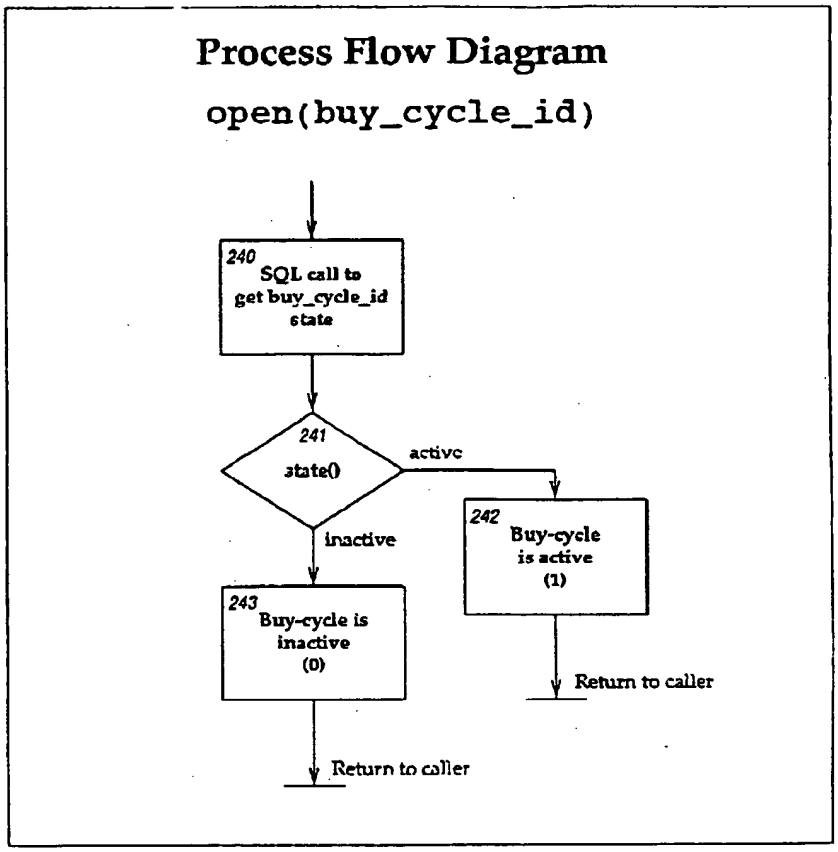

Process Flow Diagram
watchdog(buy_cycle_id)
230
open()
no
yes
231
Buy-cycle not active
Return to caller
232
Get current time and store in time_c
233
Get buy-cycle expiry time time_t
234
time_c > time_t
no
yes
235
Get current purchase requests n_current
236
Get buy-cycle max requests n_m
237
n_current > n_m - 1
yes
no
238
Buy-cycle has ended; (undef)
call end()
239
sleep(5)

FIG 7


Process Flow Diagram
open(buy_cycle_id)
240
SQL call to get buy_cycle_id state
241
state()
active
inactive
242
Buy-cycle is active (1)
243
Buy-cycle is inactive (0)
Return to caller
Return to caller

9

FIG 8

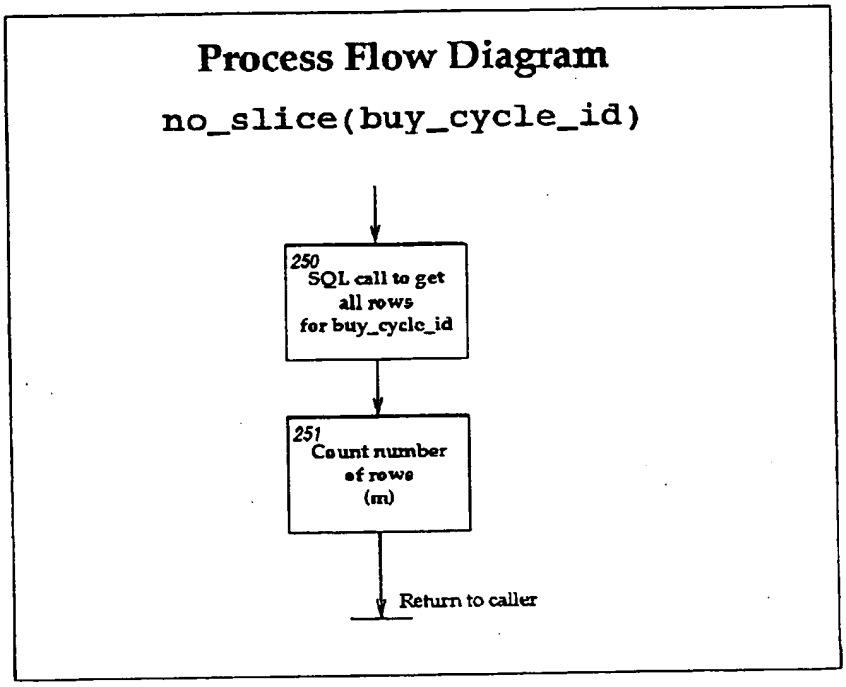


FIG 9

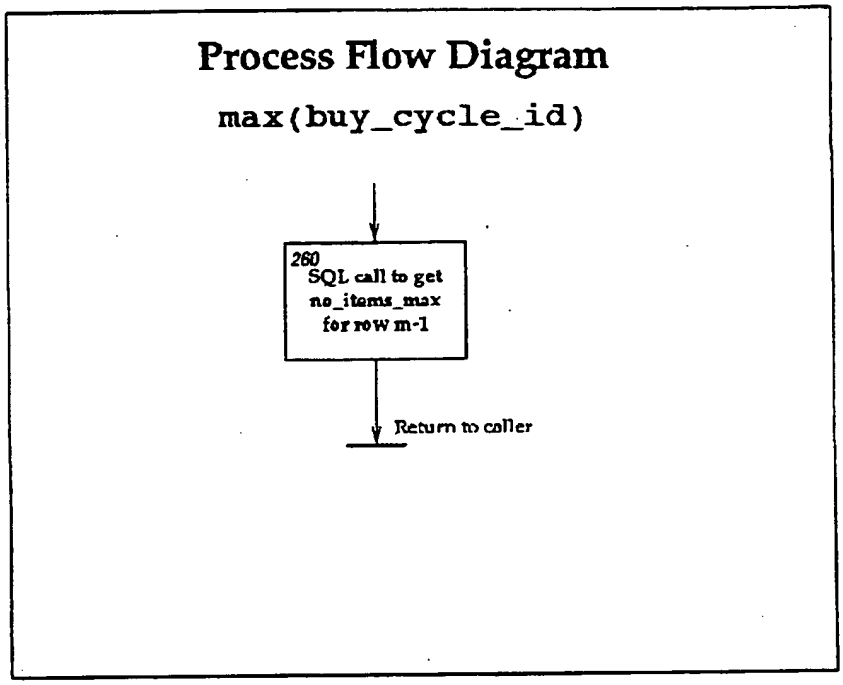


FIG 10

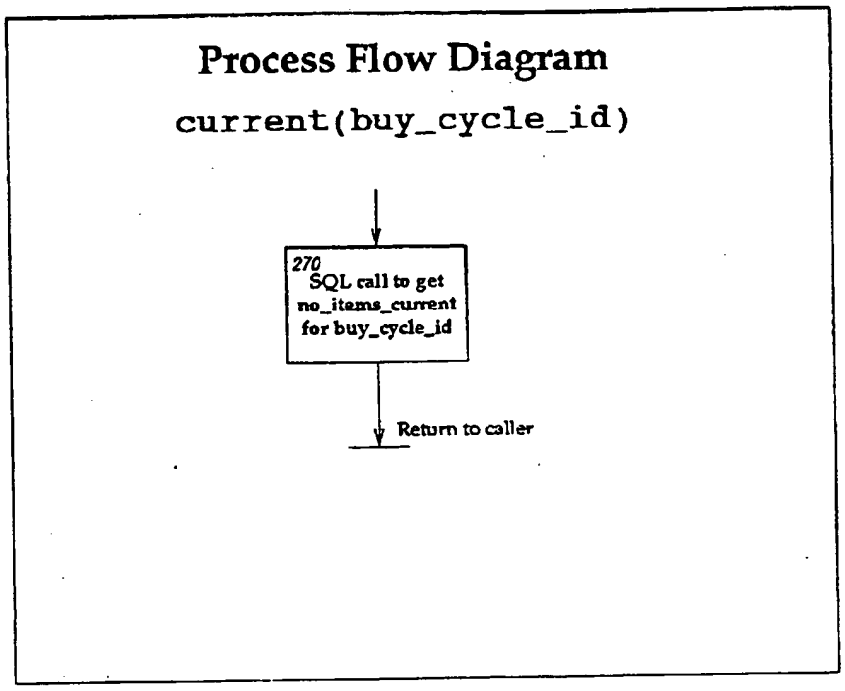

Process Flow Diagram
current(buy_cycle_id)
270
SQL call to get
no_items_current
for buy_cycle_id
Return to caller

FIG 11

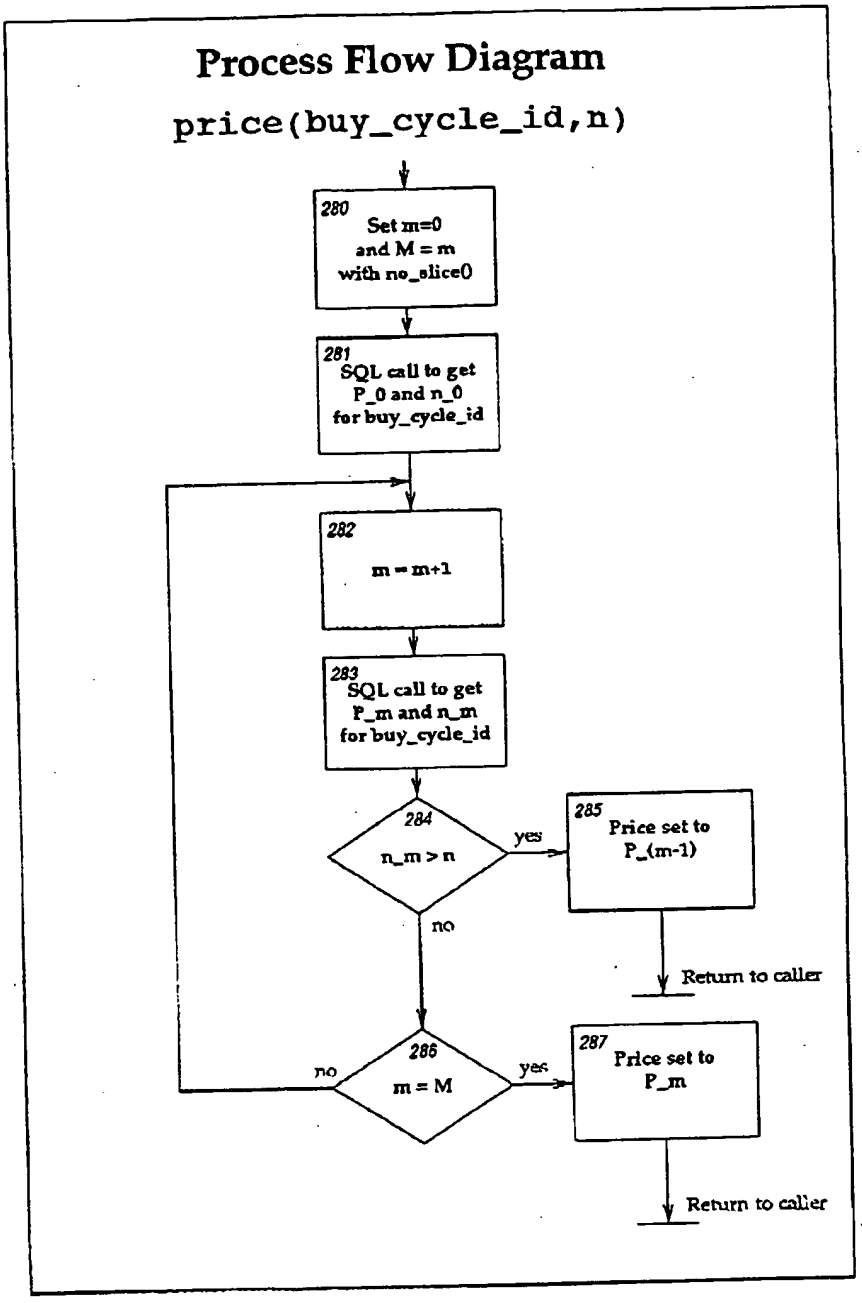
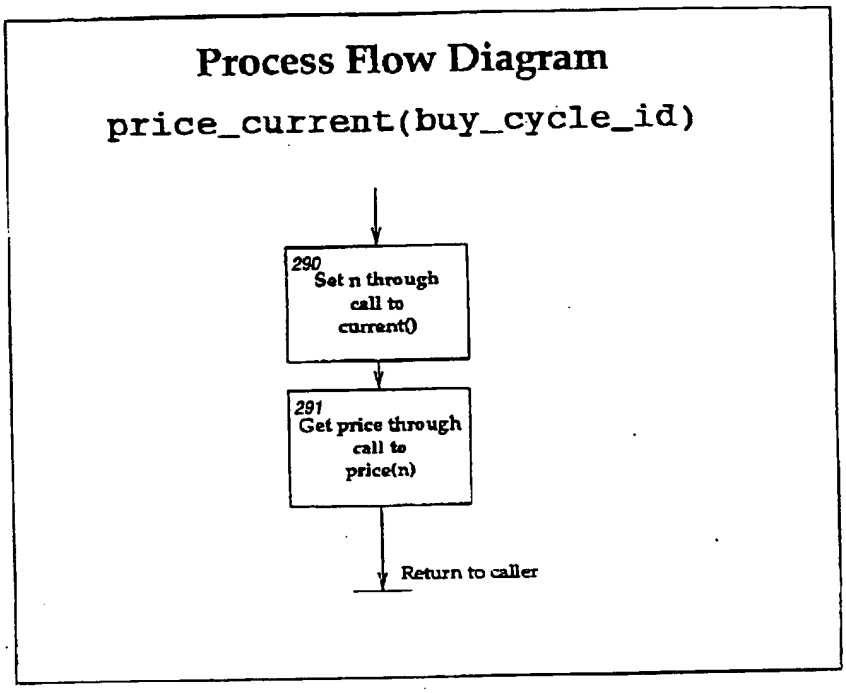

Process Flow Diagram
price(buy_cycle_id,n)
280
Set m=0
and M = m
with no_slice0
281
SQL call to get
P_0 and n_0
for buy_cycle_id
282
m = m+1
283
SQL call to get
P_m and n_m
for buy_cycle_id
284
n_m > n
yes
285
Price set to
P_(m-1)
no
Return to caller
286
m = M
no
yes
287
Price set to
P_m
Return to caller

FIG 12

(12)


Process Flow Diagram
price_current(buy_cycle_id)
290
Set n through call to current()
291
Get price through call to price(n)
Return to caller